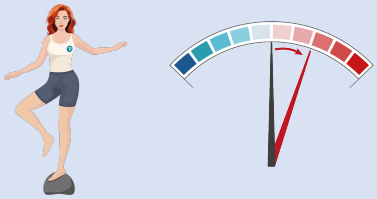
TOPIC: FEEDBACK LOOPS

- Homeostasis: controlled through feedback loops.
- **Feedback Loop**: Change to internal environment causes a _____ that alters the _____ environment.
    1. _____ Feedback Loops: moves in the _____ direction to the original stimulus.
    2. _____ Feedback Loops: moves in the _____ direction as the original stimulus.

1) Negative Feedback

- Moves system _____ the set point—maintains homeostasis.

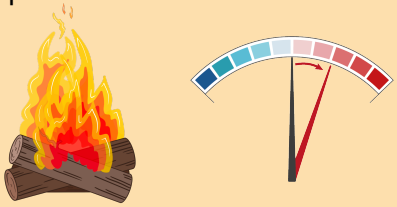


- _____-regulating
- _____ common

Important: (negative ≠ "less")

2) Positive Feedback

- Moves system _____ from the set point.



- Requires "_____ switch"
- _____ common

Important: (positive ≠ "more")

EXAMPLE: Identify the following two feedback loops as positive or negative feedback.

a) Oxytocin is a hormone that stimulates labor contractions. Labor contractions force the head of the baby downwards resulting in pressure on the cervix. Pressure on the cervix is a signal to the pituitary gland to release oxytocin.

_____ **feedback**

b) When body temperature rises, the skin will produce sweat. The evaporation of the sweat will cool the body. If body temperature falls, the body will begin to shiver. The action of shivering generates heat to warm the body.

_____ **feedback**

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PRACTICE: Which type of feedback begins as a response to a change in the internal environment?

a) Positive feedback mechanisms.
b) Negative feedback mechanisms.
c) Both positive and negative feedback begin this way.
d) Neither positive nor negative feedback begin this way.

PRACTICE: Which statement about positive and negative feedback loops is correct?

a) Negative feedback lowers the value of the original stimulus, while positive feedback increases it.
b) Positive feedback loops tend return a system to a set-point, negative tend to move the system away.
c) Negative feedback loops tend return a system to a set-point, positive tend to move the system away.
d) Negative feedback increases the value of the original stimulus, while positive feedback lowers it.

PRACTICE: Glucagon is a hormone that is released by the pancreas in response to falling blood glucose levels. The release of glucagon is part of a negative feedback mechanism. Based on that information, what effect would you expect glucagon to have on the body?

a) Glucagon signals the liver to break down glycogen and release the resulting glucose into the bloodstream.
b) Glucagon signals the liver to stop all glycogen breakdown and synthesis to try to maintain glucose levels.
c) Glucagon signals the liver to remove glucose from the bloodstream and store it as glycogen.
d) Glucagon signals the small intestine to reduce absorption of glucose into the blood.